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## Paleoclimatic reconstructions in western Canada from borehole temperature logs: surface air temperature forcing and groundwater flow

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**Abstract.** Modelling of surface temperature change effect on temperature vs. ~depth and temperature-depth logs in Western Canada Sedimentary Basin show that SAT (surface air temperature) forcing is the main driving factor for the underground temperature changes diffusing with depth. It supports the validity of the basic hypothesis of borehole temperature paleoclimatology, namely that the ground surface temperature is systematically coupled with the air temperature in the longer term (decades, centuries). While the highest groundwater recharge rate used in the modelling suggests that for this extreme case some of the observed curvature in the profile, could be due to groundwater flow, it is more likely that the low recharge rates in this semi-arid region would have minimal impact. We conclude that surface temperature forcing is responsible for most of the observed anomalous temperature profile.

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